

REMARKS

The Office Action indicated that the subject matter of claims 5-8, 14-24 and 27-28 would be allowed if rewritten in independent form.

Claims 10-13 were rejected over the first paragraph of 35 USC §112. The Office Action maintained that a circuit breaking element having a characteristic of cutting current to the starting wire after an abnormal discharge purportedly did not have any timing circuits/element capable of determining or calculating an amount of time of the abnormal discharge.

As can be appreciated there are different circuit breaking elements that are defined in our present invention. Accordingly, they can have different characteristics of cutting the flow of current to the starting wire during the failure of the metal halide lamp to prevent an outer tube discharge from occurring.

As noted in our specification on page 4, lines 3-4, an abnormal discharge can be considered an outer tube discharge and this is the safety issue that is being addressed with the present invention. Additionally as noted on page 3, lines 15-20 of our specification if the discharge or arc tube breaks the rare gas, mercury, and metal halide will escape and the arc discharge will cease. In such a condition, the current value will drop to zero. The igniter can detect that the lamp voltage has risen and will add a high voltage pulse to the sine wave voltage in the same manner at startup.

As noted in our drawing, Figure 2B and as set forth in our specification on page 26, line 14 to page 27, line 4, a high voltage pulse, for example, 4500 volts can be applied across the electrodes during startup. Such a high voltage can cause destruction of insulation and can develop into an arc discharge with greater current flows. However, the circuit breaking element could either cut or limit the current value to a value less than necessary for an arc discharge.

Claim 10 has been amended in an effort to address the 35 USC §112 issue. If there are any questions with regards to this amendment, the undersigned attorney can be contact at the listed phone number.

The present invention is directed to an improvement in the field of metal halide lamps to prevent additional damage during a failure mode and to provide a safety factor. If an arc tube breaks in a metal halide lamp having a starter wire connected to one of the feeders in the position of the vicinity of the outer surface of the arc tube than a current suppressing unit that is on the current path of the starting wire can suppress or cut off the current on that path.

As can be appreciated, a number of scientists and engineers have worked on improving metal halide lamps in a relatively competitive environment. The present invention represents a patentable improvement in this field.

The Luijks et al. U.S. Patent Number 6,392,343, was contended to completely anticipate claims 1-4. In addition, claim 9 was held to be unpatentable over the Luijks reference.

In order for a reference to be an anticipation, it must disclose each of the claim elements. The Luijks et al. reference is relevant in disclosing a metal halide lamp that can be used in both a low ignition voltage system and a high ignition voltage system. This is accomplished by having a universally applicable ultraviolet enhancer (UBE) with a ceramic wall. This teaching acknowledges that UBEs with glass or quartz walls have been known but contends that the use of the ceramic wall provides an advantage.

The Luijks reference shows two different embodiments. One is shown in Fig. 1 with a bimetallic switch 35 and another is shown in Fig. 3 without the bimetallic switch. In both embodiments, the alleged invention over the prior art is the ceramic UBE element 6. It should be noted that the bimetallic switch 35 shown in Fig. 1 is only activated when the lamp is in an

ignited state and is generating sufficient heat to cause the bimetallic switch to operate and close. Finally, a resistor 280 can act as a current limiter for the UBE and eliminate any short circuit current through the bimetallic switch when the lamp is in the ignited state.

In the first embodiment, shown in Figure 1, an ignition voltage of 150 volts is applied, see column 3, lines 42 and 43. The second embodiment discloses an ignition circuit which supplies a voltage pulse of at most 700 volts. See column 4, lines 14-18.

The Luijks et al. reference is not concerned with a high voltage pulse of the magnitude of the present invention and in fact doesn't even suggest the use of a starting wire, since in place of a starting wire it is utilizing a ceramic UBE. As can be appreciated, a starting wire is completely different from a UBE, both in the manner in which it assists illumination and in its structure. Our claims call for a starting wire in the vicinity of or in contact with the outer surface of the arc tube and provides a mechanism for preventing an abnormal discharge between exposed electrode and the starting wire if the arc tube breaks.

The Luijks UBE is positioned at a distance offset from the arc tube and is covered by a ceramic, which presumably would help prevent any abnormal discharge. The resistor 280 is dealing with the UBE winding and does not address the solution of the present invention. The Luijks et al. reference does not appear to recognize nor offer a solution to the problems addressed by the present invention and certainly does not provide a teaching or anticipation of our present claims.

Claims 25 and 26 were rejected as being anticipated by the Alderman et al. U.S. Patent Publication 2003-0006705.

The Alderman invention addressed a high pressure discharge lamp wherein an ignition or starter wire would serve the function of both igniting the arc tube and providing a containment

of the arc tube as a safety feature. Two different embodiments of the invention were disclosed. One, in Figure 4A and 4B, and the other, in Figure 5A and 5B. In both of these embodiments, a preformed helical starter wire is provided with an extended straight terminal. In Figure 4B, the purported invention in the Alderman et al. publication is disclosed, wherein the arc tube 20 has the straight terminal portion further wound around the arc tube presumably after it has been initially inserted within the preformed helical coils so that it captures the extended plug 26 and then further extends over the helical coils and is wrapped to capture the other end of the plug 27. The purpose of this arrangement is purportedly to prevent any relaxation and separation of the helical coils of the starter wire after it has been subject to high heat for a period of time. Thus, this invention is directed to solving a relaxation problem that can occur in a temperature environment above 1200 degrees Centigrade which would decrease the effectiveness of a coil antenna or starter wire and its ability to act as a containment member.

Figure 5 also discloses a further bending of a straight terminal portion about a plug of an arc tube. The bending will in effect "stabilize at least one, preferably a plurality of the coil portions and most preferably all the coil portions in the entire coil 50B so that it will substantially non-relaxed after exposure to high temperature conditions". See paragraph [0042].

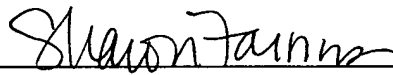
Referring to amended claim 25, our manufacturing method defines a fitting step of fitting the formed helical wire around an outer surface of the arc tube without an additional bending of the wire. It is respectfully submitted that the Alderman et al. reference is neither an anticipation nor a recognition of the advantages of the present invention.

Applicant further requests that any redrafting of the allowed dependent claim into independent form, as requested in the Office Action be held in abeyance until the above arguments and amendments have been considered and acted upon.

In view of the above comments and the present amendments to the claims, it is believed that the case is now in condition for allowance, and an early notification of the same is requested.

If the Examiner believes that a telephone interview will help further the prosecution of this case, he is respectfully requested to contact the undersigned attorney at the listed telephone number.

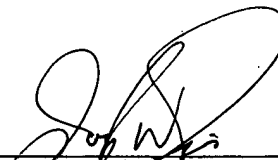
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By: Sharon Farnus

Signature

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Very truly yours,

SNELL & WILMER L.L.P.



Joseph W. Price
Registration No. 25,124
1920 Main Street, Suite 1200
Irvine, California 92614-7230
Telephone: (949) 253-4920